# BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF HAWAII

In the Matter of	) PUC Docket No. 2008-0273		
PUBLIC UTILITIES COMMISSION	)		
Instituting a Proceeding to Investigate the Implementation of Feed-in Tariffs	PUBLIC UTILITIES  PUBLIC UTILITIES	2009 MAR 30 P 4: 0	

#### **FINAL STATEMENT OF POSITION**

<u>OF</u>

HAWAII RENEWABLE ENERGY ALLIANCE

AND

**CERTIFICATE OF SERVICE** 

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#### I. INTRODUCTION

By its Order filed on October 24, 2008, the Hawaii Public Utility Commission ("Commission") opened the instant docket, referred to hereafter as the "FiT" docket. The Commission, by its Order filed on November 28, 2008, granted the November 13, 2008 motion of Hawaii Renewable Energy Alliance ("HREA") to intervene in the FiT docket. Per the Commission's Order filed on January 20, 2009, included herein is HREA's Final Statement of Position ("FSOP") on the issues as stated in the FiT docket.

HREA would like to note the following by way of introduction to our FSOP:

- Policy and Technical Discussions. HREA appreciates the opportunity we have had to meet both informally and formally with the other Parties to discuss the policy and technical issues of the FiT docket, and to exchange information requests and responses. These discussions and information exchanges have helped us better understand the positions of the other Parties.
- 2. Opening Statements of Position and Evolutions. In large part, HREA believes the Opening Statements of Positions ("OSOPs"), and importantly their evolutions, can generally be divided into two "camps" as follows, those favoring and/or supporting the:

- a. <u>Straw Proposal</u>, also referred to as the Joint Fit Proposal prepared by the HECO Companies<sup>1</sup> and the Consumer Advocate<sup>2</sup>,
- b. <u>Proposed FiT</u>, also referred to as Proposed Feed-In Tariff, initially prepared by the Blue Planet Foundation. Blue Planet subsequently spearheaded an ongoing review and revision of the Proposed FiT with a number of Intervenors ("Intervenor Group").
- c. <u>HREA's Position</u>. HREA is firmly in the "Intervenor Group" and supports the Proposed FiT which we consider to be a "work in progress." Note: rather than identifying Intervenor Group membership, HREA will leave identification to the Intervenors as they see fit.
- 3. <u>Final Statements of Position</u>. HREA's FSOP addresses the seminal issues of the instant docket, i.e., simply stated, should there be a FiT Program, and if so, how should it be designed and implemented? Overall, we believe the Proposed FiT also addresses the seminal issues, as well as most, if not all of the sub-issues that have been identified. Therefore, we will provide discussion and comment on the merits of the Proposed FiT with respect to the Straw Proposal.
- 4. <u>Principles of Fit Design and Implementation</u>. HREA believes the design and implementation of a FiT Program appropriate to Hawaii should be guided by a number of principles, such as but not limited to the following:
  - Rapid Expansion of wholesale and retail renewable energy facilities and systems in support of the Hawaii Clean Energy Initiative ("HCEI") and related state energy objectives,
  - Achievement of this expansion at a reasonable cost to all ratepayers, considering
    lifecycle costing evaluations that include adjustments for risk associated with
    greenhouse gas emissions and other environmental impacts,

<sup>&</sup>lt;sup>1</sup> The HECO Companies are Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Ltd.

- c. Implementation of a FiT program in a way that complements and supplements
   existing facilitation mechanisms, which include the competitive bidding framework,
   Schedule Q contracts, net energy metering, and tax credits and other incentives,
- d. A <u>Grid Infrastructure Program</u> ("GRIP") which facilitates resolution of grid integration and operation issues, such that renewables can be "plug and play,"
- e. "No harm is caused policy" to existing and future renewable facilities,
- f. A robust and "technology agnostic" market is created, and
- g. <u>Non-utility FiT solutions are emphasized</u>, while the utility focuses on its grid infrastructure.
- Bottom-line. HREA believes the Proposed FiT is superior to the Straw Proposal, and recommends the Commission issue a Decision & Order to review, revise and implement the Proposed FiT tariff.

HREA's FSOP, which we also consider to be a "work in progress," is presented and discussed in Section II. We look for to additional discussions in the Panel Hearing.

<sup>&</sup>lt;sup>2</sup> The Division of Consumer Advocacy of the state of Hawaii Department of Commerce and Consumer Advocacy.

#### II. HREA'S FINAL STATEMENT OF POSITION

#### A. ISSUES

The following is HREA's final statement of position on the issues as stated in the Commission's Order filed on January 20, 2009.

#### Purpose of Project-Based Feed-In Tariffs ("PBFITs")

1. What, if any, purpose do PBFITs play in meeting Hawaii's clean energy and energy independence goals, given Hawaii's existing renewable energy purchase requirements by utilities?

#### HREA's Position.

HREA believes that PBFiTs ("FiTs") can play a key, enabling role if they are designed and implemented addressing the spirit and intent of the seven principles as discussed in Section I. We offer this short review of the primary mechanisms that have been employed, starting from the implementation of PURPA by the federal government in 1978, including some that are not strictly energy purchase requirements, e.g. net metering:

1. PURPA. In spirit, PURPA has resulted in new renewable facilitates in Hawaii, but the actual deployment cannot be characterized as "rapid." In general, PURPA has encouraged those technologies that were most mature and cost-effective, given the avoided cost payments as implemented in Hawaii. With oil prices and avoided cost payments relatively low, only 42 MWs of new renewables were installed under PURPA during the 90s (all on Hawaii; 30 MW of geothermal and 12 MW of hydro). During that period, development of three wind projects totaling 60 MWs was initiated, but these did not come on-line until the 2006 to 2007 timeframe as oil and avoided cost payments began to rise. Again, this is not rapid deployment.

As concluded by WSB-Hawaii in a study conducted for the Hawaii Energy Policy Forum in 2003<sup>3</sup>, negotiations with the utility required years, in part as interconnection

Interim Report on "Renewables and Unconventional Energy in Hawaii," November 2003, WSB-Hawaii under contract to the Hawaii Energy Policy Project (see <a href="http://hawaiienergypolicy.hawaii.edu/papers/bollmeier.pdf">http://hawaiienergypolicy.hawaii.edu/papers/bollmeier.pdf</a>)

requirements evolved solutions and there were contentious arguments regarding the definition of avoided costs. The purpose of this discussion is not to assess blame, but merely to point out, as did WSB-Hawaii, that efforts to implement renewables in Hawaii had not "lived up to the intent and spirit of PURPA." While WSB-Hawaii recommended that there be new life for PURPA in Hawaii under RPS, the reality is that "business-as-usual" continued. In fact, as of this date, HREA is aware of only one new renewable project (a 500 kW hydro on Maui) that has come on line subsequent to the 60 MWs of wind discussed above.

2. The Promise of Competitive Bidding and RPS. Renewable Portfolio Standards ("RPS") were conceived on the mainland as quota on wholesale energy delivery by electric utilities. New renewable projects could be installed by utilities, but the primary RPS implementation mechanism was competitive bidding. In fact, such an approach has been quite successful in Texas and many other states out of the 28 states and DC that have RPS laws as of this date.

In Hawaii, our competitive framework was approved by the Commission in December 2006. Since then, the first competitive procurement under the framework was initiated in 2008 by HECO for up to 100 MW of as-available renewable energy on Oahu. Proposals were submitted and HECO indicated a goal for awarding one or more contracts by December 2009. This pace would hardly be deemed "rapid." Still, HREA believes competitive bidding has a place, especially for larger projects, such as 50 MW and above. One other consequence is the remnants of PURPA as embodied in a number of PURPA projects under discussions as the competitive bidding docket was in process. One would have thought that some of these 17 or more projects, which were exempted or waived from competitive bidding, would have reached agreement and contracts signed. However, as of this

- writing, HREA is not aware of any that have signed contracts. So, as previously noted above, proposal of unsolicited projects under PURPA has continued to NOT be "rapid." Perhaps one or more of the 17 or so projects might benefit from a FiT? With respect to competitive bidding in Hawaii, the "jury is out."
- 3. Have There Been Any Success. There have been successes in renewable implementation both with off-set technologies, such as solar hot water ("SHW") systems, and distributed generation ("DG"). In the case of SHW, efforts initiated by the solar industry to secure and sustain tax credits coupled with utility Demand-Side Management ("DSM") programs have resulted in well over 100,000 SHW systems statewide. Progress with renewable DG has been more recent, given the revamping of the net metering law in 2001. As noted by WSB-Hawaii in its 2003 study, net metering was likely to achieve success over time as prices for renewable DG became more competitive and with continued support from state tax credits. In fact, 2008 was a banner year for PV with more MW installed than all the previous years combined. Thus, net metering is on the threshold of even greater success with the extension of the federal tax credits through 2016. To date, HREA does not believe Schedule Q contracts have been much of a factor. Thus, HREA strongly supports continuation of net metering in parallel with a FiT program.

HREA believes the promise of a FiT program lies primarily in the following:

Reduced amount of negotiation required. This assumes that the approved FiT tariff includes general terms and conditions and fair payment rates to the FiT providers.

Basically, such a program will move the market, when FiT providers or customers review the FiT tariff and say "Yes, this works for me." See our response to Issue7 regarding the merits of specific FiT proposals, such as the HECO/CA Straw and the Blue Planet Proposed FiT Tariff.

- 2. Getting the payment rates right. The payment rates must be fair to the FiT provider and/or customer, i.e., the payments must be sufficient to cover the FiT investment with a reasonable profit. In addition, the payment rates must be just and reasonable to the ratepayer. We believe both of these objectives can be met. See also our response to Issue7, and
- 3. The Utility Must be a Willing Partner. HREA believes by signing the Energy Agreement, the HECO Companies have agreed to support a FiT program, should one be approved by the Commission. If so, we believe the FiT program can succeed, for example, where PURPA has failed because of:
  - a. The Double Goals of Decoupling. Under decoupling, per the Energy
    Agreement, the HECO Companies will: (i) ideally make the HECO
    Companies "indifferent" to fluctuations in sales, which may be reduced for
    any number of reasons including general economic conditions, weather
    conditions and HCEI activities. This is a brave new world that would appear
    to be much different than the current situation where utility was concerned
    about the impacts of revenue losses, and would likely have opposed FiT, and
    (ii) gain more certainty in their revenue stream, reducing regulatory lag; and
  - b. <u>Simplified Contract Negotiations for the Developer/Customer</u>. With a FiT contract mechanism, negotiations for general terms and conditions, including price, are not necessary. Therefore, both sides of that traditional negotiation should be happy. However, negotiation will be required, at leased at the present time, for interconnection of certain projects, subject to the technology and size of the FiT projects and the results of any required Interconnection Requirements Studies ("IRS"). In any case, the negotiation process should be a vast improvement compared to negotiation under PURPA.

2. What are the potential benefits and adverse consequences of PBFiTs for the utilities, ratepayers and the State of Hawaii?

#### HREA's Position.

As stated above in our response above to Issue 1, FiTs offer the potential for accelerating the deployment of renewables which would benefit the utilities, ratepayers and the State of Hawaii. Other potential benefits to all the stakeholders include:

- Reduction of fossil fuel use, which translates to less carbon emissions and avoidance of potential carbon taxes; and
- b. More stability in energy bills over time, as oil price volatility is reduced.

Other Specific Benefits by stakeholder include:

- a. <u>Utilities</u>. HREA believes the utilities will ultimately benefit from overall lower costs to supply electricity and a "cleaner" image that will ultimately be reflected in the price of their shares and bond ratings;
- <u>Ratepayers</u>. HREA believes ratepayers (also customers) will have more choice in their energy options, including fulfilling their personal desires to become more energy independent; and
- c. State of Hawaii. HREA believes the State of Hawaii will also benefit from a "cleaner" image (i.e., more tourists will come to see who we are and what we have done) and the increase energy security that will come with increased levels of energy independence, and perhaps most importantly the economic stimulus of increased renewables in Hawaii.

Potential Adverse Consequences include:

a. <u>Perceived or real grid integration impacts</u>. Per principle "d," all real integration impacts must be addressed by the utility in collaboration with industry in developing and implementing a GRIP for each island. We believe over the long term, as we move towards the "Smart Grids" of the future, technical solutions primarily in the

form of ancillary services and other measures will be identified and implemented. Of course, there will be cost impacts for ancillary services and other measures to be paid for by the utility and/or industry, and ultimately the ratepayer. From our response to HECO/HREA-IR-4 on March 13, 2009:

"We propose that the utility provide all ancillary services to insure that reliability and power quality are maintained on each island. Given that, the FiT program can work more efficiently and effectively to accelerate the deployment of renewables in the islands. As a back-up, on a project by project basis, if the utility and developer agree that a project-specific ancillary services component is desirable, the developer could provide the services as an "adder" to the basic FiT or on a separate FiT.

However, it is still our belief that the more cost-effective approach will be for the utility to identify key locations in its grids where the appropriate technology (such as a battery-inverter system) should be deployed, and to do so as rapidly as possible."

With the evolving HCEI, there are significant potential grid infrastructure costs, e.g., the cable system that would interconnect Oahu with Maui. With a cable system, the affected grids begin to take on the aura of a larger "central station" grid with Big Wind projects dispersed on Molokai and Lanai.

Furthermore, in the WSB-Hawaii report, an assessment of the efficacy of DG versus CG ("Central Generation") by Loudat and Associates<sup>4</sup> concluded the following:

"The report presents a framework allowing the assessment of the economics of power generation transitions. The qualitative aspects of this framework demonstrate the breath required for a comprehensive economic analysis of this transition. Since the framework is quantitative it also allows a preliminary investigation of the economics of meeting incremental power demands transitioning from central generation capacity to distributed generation capacity. Adapting and subsequently using the model for a *preliminary analysis of Oahu incremental power demands through 2023 indicates that there are power cost savings*, which lead to consequent economic and fiscal benefits to maximizing power from DG.

<sup>&</sup>lt;sup>4</sup> Appendix J to the Interim Report, entitled: "The Economics of Transitions to Heat and Electricity Generation through Non-Conventional and Renewable Fuels," prepared by Drs. Tom Loudat and Prahlad Kasturi.

Even though the results are preliminary, they support the contention that every measurable policy goal is improved by utilizing DG given the base assumptions regarding current technology, efficiencies, costs and emission in the Hawaii Energy Transition Model. *The numerous options tested in the model all demonstrate a uniform advantage for DG derived power*. Since DG technologies are in the early part of the learning curve, further DG improvements can be anticipated as deployment increases. The recent blackout in the North East and Canada stretching from Toronto to New York shows how system vulnerability due to system surges, extreme weather or terrorist actions will improve as the potential for DG is realized. *Power quality will also improve by moving towards a hybrid of CG and DG power systems*.

The prima facie evidence from our analysis that supplying approximately 80 percent of Oahu's power need from CG may no longer be optimal suggests that similar analysis holds true for the other counties in Hawaii. It is clearly important to revisit and reexamine Hawaii's regulatory environment for the utilities industry, the structure of institutional incentives for non-conventional and renewable fuels, refinery and transportation constraints, and constraints imposed by resource capacity and community acceptance. Siting of co-generation facilities in the State and power procurement are other candidates demanding immediate attention in order to facilitate the emergence of green power in the State. The time appears to be propitious for making the transition to soft energy paths."

Thus, while the cable system can bring certain benefits, HREA believes we must devote increasing effort to open the DG market.

HREA would also like to note supporting evidence presented by the Solar Alliance in their response to HECO/Solar Alliance-IRs-4 and 5 that implementation of a FiT program, such as the Proposed FiT Tariff will improve system reliability and power quality.

In short, HREA believes the rapid deployment of renewable DG will have positive impacts on grid reliability, stability and operation.

b. <u>Perceived or real cost impacts</u>. In addition to our comments above in "a." regarding the WSB-Hawaii Interim Report, we would like to restate our response below to HECO/HREA-IR-7 on March 13, 2009:

"HREA believes that the benefits of net metering to the utility and its ratepayers are equal to or greater than their costs. Given that the FiT rates to be established as an output of the instant docket are likely to be less than retail rates, the benefits of the FiT should exceed their costs.

Of course, the benefit/cost discussion has been going on for years with no agreement as to a methodology for a detailed study. If the HECO Companies believe such as study is needed, we suggest that one be implemented by the HECO Companies or the CA in collaboration with the other Parties on the instant docket. Also, HREA asks HECO Companies to share the results of any studies with the other Parties that they may have already conducted on benefits/costs of net metering and/or FiT."

And we would like to restate our response below to HECO/HREA-IR-8 on March 13, 2009:

"HECO/HREA-IR-8. How does your FIT proposal insure that ratepayers within each of the three utility service territories do not receive significant rate increases?

HREA Response: HREA is not sure what the HECO Companies means by significant rate increases. Notwithstanding that need for clarification and our response on HECO/CA-IR-7, we do not believe there would likely be any significant rate increase due to the FiT program. Over time, as renewables replace fossil fuel generators, we would anticipate (as supported by the initial HCEI economic impact analysis) that rates, and more importantly energy bills, would decrease.

As one point of reference, the initial surge of renewables in Germany under their FiT program resulted in installation of 14,000 MW of renewables at a cost of about 1 euro per month per residential customer. This would not appear to represent a significant rate increase, especially given the Germans admittedly found their initial FiT rates to be generous, and subsequently readjusted them."

The Solar Alliance has also weighed in on this issue by way of their response to HECO/Solar Alliance-IR-7. Specifically, the Alliance has provided a lifecycle cost evaluation of the potential impacts of PV systems (arguably one of the higher cost FiTs envisioned). The results indicate that PV FiT rates will likely be less than utility rates for 10 or more years out of 20 year term for residential, and G, J and P customer classes.

In short, the hedge value of renewables looks really good assuming the price of oil will go up over time. Should that not happen, or there are periods of decreasing or stable oil prices, we believe ratepayers will ultimately have "no regrets" about a rapid deployment of renewables. Why? A major benefit of renewables is that their

costs will be known, a vastly superior attribute compared to conventional, oildependent resources.

## 3. Why is or is not the PBFiT the superior methodology to meet Hawaii's clean energy and energy independence goals?

#### HREA's Position.

HREA believes the PBFiT ("FiT") can be a superior methodology to meet a certain portion of Hawaii's clean energy and energy independence goals. The challenge is to determine which portion (s) of the market would benefit most from FiT. First, as noted above, the FiT must be appropriately designed and implemented. In our response to the non-legal questions in Appendix C of the NRRI Scoping paper, we indicated the payment rates should be fair and designed to help move the market. Getting this first step right will attract interest from customers, developers, industry and investors.

Second, the FiT transaction, including all the terms and conditions of the FiT Tariff Sheet or Schedule must transparent, reasonable and non-discriminatory. As noted above in our response to Issue1: "Basically, such a program will move the market, when FiT providers or customers review the FiT tariff and say "Yes, this works for me." We believe the Proposed FiT Tariff is very close to such a FiT Tariff.

Third, ideally there should be essentially no limits to FiT implementation, only "speed bumps" along the way as potential problems with system integration and circuit loading are identified and remedied. FiTs have been shown to work well in other jurisdictions when everything is done "right" or shall we say "smart." If the first round of implementation doesn't succeed, then appropriate corrections must be identified and correct. Overall, we believe getting and keeping it smart is and will be a challenge.

Finally, while we have discussed some aspects of the merits of FiTs compared to other processes in our response to Issue1, see also our response to Issue7. At this point, we believe the FiT represents a "superior" way to supplement these other processes.

#### Legal Issues

4. What, if any, modifications are prudent or necessary to existing federal or state laws, rules, regulations or other requirements to remove any barriers or to facilitate the implementation of a feed-in tariff not based on avoided costs?

#### HREA's Position.

At the present time, we see one issue that needs to be addressed in our state law (HRS §269-27.2) regarding payments for wholesale renewable power. Specifically, subsection (c) of HRS §269-27.2) reads as follows:

"In the exercise of its authority to determine the just and reasonable rate for the nonfossil fuel generated electricity supplied to the public utility by the producer, the commission shall establish that the rate for purchase of electricity by a public utility shall not be more than one hundred per cent of the cost avoided by the utility when the utility purchases the electrical energy rather than producing the electrical energy."

Therefore, we support an amendment to HRS §269-27.2 to remove the prohibition of wholesale rates above avoided cost that is included in subsection (c). At the present time, there is one bill (HB 1270 SD1) alive at the legislature which includes language to remove the "avoided cost" criteria. Should this bill be passed with a satisfactory treatment of this issue, the question of modifications to state law will be rendered moot.

5. What evidence must the commission consider in establishing a feed-in tariff and has that evidenced been presented in this investigation?

#### HREA's Position.

Ideally, there would be sufficient data and information on the costs on existing renewable systems, such that the Commission can make an informed decision on how to structure the FiT. And HREA believes existing data and information are potentially available to the Commission under protective order. However, the same level and detail may not be available for all the technologies of interest for FiT. Nevertheless, HREA will strive to provide supporting information on the technologies that are most appropriate for a FiT Program. At the present time, HREA supports FiTs for wind, photovoltaics and concentrating solar power and biomass.

Regarding wind, we do not have appropriate supporting information available at the present time. Regarding solar, we defer to the Solar Alliance and HSEA for information on PV and Sopogy for information on Concentrating Solar Power ("CSP") and to HC&S for information on biomass.

HREA is open to discussion regarding potential FiTs for other renewable technologies, as we do not wish to arbitrarily exclude other technologies, such as run-of-the-stream hydropower, in-line hydro, wave and Ocean Thermal Energy Conversion ("OTEC"). However, at the moment, we are not in a position to provide information necessary to build a case for inclusion of those additional technologies and possible other technologies at this time.

However, we do believe the Parties should consider additional technologies that could provide certain ancillary services, such as peak shaving, power smoothing, frequency regulation, voltage support, VARS support, black start capability and fault ride through capability. We see this as an alternative on an interim basis while the utility and industry prepare the GRIPs for each of the islands. For example, not only will the introduction of these technologies serve as a demonstration, their installation and operation will likely inform the ultimate direction of the GRIPs on each of the islands. We seek input from the other Parties on this recommendation

As of this writing, the specific technologies of interest include battery storage and pumpedhydro storage for 34.5 kV and 69 kV peaking shaving, power smoothing and frequency regulation, and possibly other applications.

#### Role of Other Methodologies

6. What is role to other methodologies for the utility to acquire renewable energy play with and without a PBFiT, including but not limited to power purchase contracts, competitive bidding, avoided cost offerings and net energy metering.?

HREA's Position.

Building on our responses to issues 1 and 3, sees the FiT as a logical supplement and complement to existing processes to acquire renewables or facilitate renewable deployment.

Consequently, we are looking for the FiT "sweet spot." First, let's take a quick look at the key alternatives:

- 1. Existing Competitive Bidding Framework. The competitive bidding framework is geared for larger projects, i.e., over 5 MW on Oahu and over 2.7 MW on Maui and Hawaii. HREA believes that bidding out projects under this threshold may not be cost-effective. After the results of HECO's 100 MW RFP, we will be able better assess that supposition:
- 2. Exemptions and Waivers to the Competitive Bidding Framework. Per the framework, projects under the threshold can be submitted on an unsolicited basis. However, as noted previously, history tells us negotiation of power purchase agreements is a contentious, drawn out process. So, unless more certainty and fairness is provided in avoided cost offerings, HREA believes its application is less desirable;
- Options for smaller projects. Net metering has worked well for renewable projects
  (wind, solar, biomass and hydro) up to 100 kW. Schedule Q contracts are also
  available for up to 100 kW, but we cannot comment on how ell that has worked to
  date.
- 4. Procurement Void. Given the current net metering and competitive bidding frameworks, there is an apparent "void" between the smaller (100 kW) to larger (2.7 MW to 5 MW) size range projects. This "void" can be addressed via unsolicited proposals under the competitive bidding framework.

So how does a FiT Program fit within this continuum?

1. FiTs could address the procurement void by supplementing competitive bidding:

- a. Per the Straw Proposal, FiT would fill part of the void as an exemption to competitive bidding but only up to a 500 kW project size on Oahu and up to 250 kW on Maui and Hawaii., and
- Per the Proposed FiT, FiTs eliminate the procurement void, and provide for FiTs up to 20 MW..
- FiTs would replace net metering, as proposed in the Straw Proposal. However, this
  is not proposed in the Proposed FiT Tariff. Again, HREA supports the continuation
  of net metering.

<u>Discussion</u>. HREA believes competitive bidding may work best when larger projects are contemplated, especially those over 50 MW. On the opposite end of the spectrum, net metering is a policy that is working well and should be allowed to continue work well especially for those customers that want to off-set a portion up to all of their electricity demand in kWhs.

Thus, the "sweet spot" for FiTs would appear to be as an option to:

- 1. net metering,
- 2. pay for excess delivery of electricity to the grid via net metering,
- 3. waivers and exemptions to competitive bidding,
- 4. facilitate projects up to 20 MW.

So how do the Straw Proposal and the Proposed FiT Tariff compare:

- Straw Proposal. In large part, the Straw Proposal is not the "sweet spot" we are seeking as it fails to meet most of the seven guiding principles. Specifically, it does not:
  - a. set a rapid deployment pace by severely limiting the FiT options to smaller
     DG. Instead will likely serve to reduce, if not eliminate, the momentum
     gained under net metering,

- integrate well with other mechanisms, i.e., it would eliminate net metering and it does not address larger systems in the "procurement void" as discussed above,
- c. include a plan for grid infrastructure improvements to support the FiT,
- d. include a provision for "no harm to existing projects,
- e. open the FiT to biomass, and
- f. make it clear, given the HECO Companies' PV Host proposal that the HECO Companies will not compete with industry.
- 2. Proposed FiT Proposal. In contrast, the Proposed FiT proposal:
  - a. will be more likely to support a rapid deployment of renewables,
  - b. will be cost-effective based on the analysis provided by the Intervenor Group,
  - c. will operate in a way which supplements and complements other procurement mechanisms, mainly in terms of being an option to net metering and a means of addressing the "procurement void,"
  - d. identifies the need for grid infrastructure improvements,
  - e. includes a "no harm to existing projects" component, i.e., a proposal by
     Tawhiri for curtailment-indexed payments,
  - f. is more technology agnostic, and
  - g. emphasizes non-utility solutions.

HREA's Position Regarding FiT's Fit With Other Methodologies. FiT can supplement and complement other methodologies as follows. Specifically, FiT can provide an alternative to:

a. <u>Net metering</u>. Thus, as an option, net metering should continue as noted in the Energy Agreement, only being limited at the circuit level. HREA supports payment of excess energy from net metered systems via a FiT,

- b. <u>Competitive Bidding</u>. FiT can address the "procurement void", if larger FiT projects are allowed, e.g., to cover the existing 5 MW threshold. Better yet, HREA believes there are additional benefits to increasing the exemption threshold to 20 MW, and
- c. Other Technologies. HREA also supports consideration of being technology inclusive. In addition to renewable technologies, HREA also supports FiTs for ancillary services.

#### Best design for a PBFiT or alternative method

7. What is the best design, including the cost basis, for PBFiTs or alternative feed-in tariffs to accelerate and increase the development of Hawaii's renewable energy resources and their integration in the utility system?

#### HREA's Position.

HREA has participated in a collaborative effort spearheaded by the Blue Planet Foundation to investigate a FiT alternative to the HECO/CA Straw Proposal. Herein, HREA will refer to the Proposed Fit Tariff (see Attachment) that we support and understand will be included with the Blue Planet's OSOP and others. When we say "support" we mean that the FiT Schedule includes an appropriate set of technologies (wind, photovoltaics, concentrating solar power, biomass and others) with proposed island-specific payment rates over a range of facility sizes, and detailed terms and conditions. While taking this step may appear to be the "cart before the horse," HREA believes in doing so, it has helped HREA and other Parties gain focus and traction on what is important about PBFiT design and implementation.

To us, the bottom line is this. If an interested Party looks at the "FiT Schedule," either as provided by Blue Planet or the ultimate result of this investigation, and says simply "this works for me," FiTs will work in Hawaii.

That said, we consider the Proposed FiT Tariff to be a "work in progress," and will seek additional discussion and possible revisions around the following:

- Curtailment Issues. HREA supports the Tawhiri proposal to address the subject of potential curtailments via a "curtailment-indexing" payment rate. We defer to Tawhiri on the details of that proposal;
- Interconnection Issues. Our initial view of the interconnection issues and how they
  can be addressed was presented in our response to HECO/HREA-IR-12 which is
  inserted below:

"HREA's understanding of the HECO/CA proposal is that as-available resources, e.g., wind, solar and in-line hydro would be eligible for FiTs. With respect to wind and solar up to 500 kW, HREA understands that the technical requirements would be those currently in Rule 14 with possible modifications.

HREA's view technical requirements based on an alternative proposal, such as promulgated by Blue Plant, as follows for customer-side ("retail") and utility-side ("wholesale") applications:

- <u>Customer-Side</u>: Projects must meet requirements as specified in utility Rule 14, as modified (TBD) for FiTs. For initial FiT implementation there would be **no**:
  - performance standard requirements (e.g., ramp rate restrictions),
  - fault ride-through requirements, and
  - utility control of individual projects up to 5 MW. Note: a cost adder will be negotiated, if utility control is required on larger projects.
- <u>Utility-Side</u>: Projects must meet basic interconnection requirements as specified in the utility "Rule XY," as developed in the instant docket. The basic Interconnection requirements (not including performance standards and fault-ride through capability) will be derived from existing power purchase agreements and modified (TBD). The new rule will include the following two options:
  - Utility Responsibility (Preferred Option): the utility designs and implements the necessary ancillary services to maintain grid safety and integrity. Ancillary services will include, but not be limited to: frequency regulation, voltage support, peak shaving, load shifting, black start capability and VAR support; and
  - Customer/Developer Responsibility (Back-Up Option): if ancillary services are required by the utility at the project level, the customer/developer will provide the necessary equipment and controls to smooth project output and to provide Fault Ride-Through Capability. Note: if this option is invoked the ancillary services will be paid via an adder to the basic FiT payment."

We are open to additional discussion on this proposal;

- 3. Proposed Technologies and FiT rates. As noted previously in our response to Issue5, HREA supports FiTs for wind, photovoltaics and concentrating solar power and biomass. Regarding wind, we do not have appropriate supporting information available at the present time. Regarding solar, we defer to the Solar Alliance and HSEA for information on PV and Sopogy for information on Concentrating Solar Power ("CSP") and to HC&S for information on biomass. We are open to inclusion of other technologies such as in included in the attachment, but take no position on the payment rates that are included;
- 4. <u>FiT System Caps for each Island Grid</u>. At the present time, HREA does not believe we have enough information to determine whether there should be system capacity Caps for each island, and if so, what the quantitative value for each island should be. We support the proposed 25% and 50% Caps in the attachment (based on the grid peak demand) for wind and solar respectively ONLYL as suitable on an interim basis and subject to further review; and
- FiTs for Ancillary Services. As discussed previously in our response to issues 2 and
   we support the creation of FiTs for ancillary services to be provided by battery
   and/or pumped hydro storage. We look forward to discussion on this proposal.

#### **Eligibility Requirements**

8. What renewable energy projects should be eligible for which renewable electricity purchase methods or individual tariffs and when?

HREA's Position.

See our response to Issue 7. In addition, the FiT Schedule is designed to be implemented upon the Commission Decision and Order.

#### Analysis of the cost to consumers and appropriateness of caps

What is the cost to consumers and others of the proposed feed-in tariffs?
 HREA's Position.

See HREA's response to Issue 2.

10. Should the commission impose caps based upon these financial effects, technical limitations or other reasons on the total amount purchased through any mechanism or tariff?

#### HREA's Position.

See HREA's response to Issues 2 and 7.

In addition, HREA would like to note that the cost/benefit issue was discussed in the Net Metering docket (No. 2006-0084). At that time, it was recognized in the Parties stipulation, dated September 9, 2007, to the Commission that while there are costs to the utility in net metering, there are also benefits that need to be considered. We are interested in what other Parties have to say about this issue, especially given parallel discussion regarding the implementation of decoupling in Hawaii.

#### **Procedural Issues**

11. What process should the commission implement for evaluating, determining and updating renewable energy power purchase mechanisms or tariffs?

#### HREA's Position.

HREA recommends that the utility be required to issue periodic reports on the number and status of FiT applications. The reports should be monthly for the first year, and perhaps less frequently thereafter. We also recommend that the commission conduct an initial review of the FiTs at the one year point, at the latest, with the intent of having any desired changes in at the 2 year point. While the FiT would be a special type of power purchase mechanism, HREA suggests that the commission conduct periodic reviews and evaluations of other power purchase mechanisms. Though not on the list of issues, HREA suggests that existing renewable IPPs be offered the opportunity to convert to a FiT.

12. What are the administrative impacts to the commission and the parties of the proposed approach?

HREA's Position.

Regarding administrative impacts to the commission, HREA believes it wise to continue their consultant agreement with NRRI to help "Operate and Maintain" the PBFiT. We suspect, but leave it to the commission, as to whether additional staff is required.

Regarding administrative impacts to the Parties, HREA can only speak for itself and its members. Overall, we see the implementation of FiTs could significantly reduce the "cost of doing business" in Hawaii, and we welcome the challenge to get it smart.

#### B. <u>CONCLUSION</u>

Given our long-standing state goals to increase our use of renewables and now the HCEI, HREA believes that FiT is an excellent addition to our implementation portfolio, which includes and should continue to include competitive bidding and net metering. We believe FiT has the potential, if appropriately designed and implemented, to take implementation (or deployment) of renewables in Hawaii up to a whole new level. Finally, HREA heavily favors the implementation of the Proposed FiT over the Straw FiT, and recommends that the commission issue a Decision and Order to implement the Proposed Fit.

Mh A Bullment

DATED: March 30, 2009, Honolulu, Hawaii

## Attachment A Proposed FiT Tariff

#### SCHEDULE FIT

Feed-in Tariff – Purchases from Renewable Energy Generating Facilities

#### Definitions:

For the purposes of this Schedule:

- (1) "Biogas" means a gaseous fuel produced by anaerobic decomposition of organic matter.
- (2) "Biomass" means aquatic or terrestrial plant material, vegetation, or agricultural waste, originating in the State of Hawaii, used as a fuel or energy source.
- (3) "Company" means Hawaiian Electric Company, Inc.
- (4) "Concentrating Solar Power Facility" means a Renewable Energy Generating Facility that generates electricity by concentrating Solar Radiation to heat a working fluid that drives a generator.
- (5) "Electrical Capacity" means the installed maximum potential alternating-current electricity generating capacity, in kilowatts, of a Renewable Energy Generating Facility.
- (6) "Hybrid Facility" means a Renewable Energy Generating Facility that generates electricity from two or more Renewable Energy Sources.
- (7) "Hydropower" means the energy of moving water, including wave energy, ocean thermal energy conversion, and tidal energy.
- (8) "Non-Wood-Burning Generating Facility" means a Renewable Energy Generating Facility that generates electricity from Biomass and that is not a Wood-Burning Generating Facility.
- (9) "Offshore Wind Generating Facility" means a Wind Generating Facility that is located in an ocean water depth of at least 20 meters.
- (10) "Onshore Wind Generating Facility" means any Wind Generating Facility that is not an Offshore Wind Generating Facility.
- (11) "Photovoltaic Generating Facility" means a Renewable Energy Generating Facility that generates electricity from unconcentrated Solar Radiation.
- (12) "Renewable Energy" means electricity generated by a Renewable Energy Generating Facility from a Renewable Energy Source.
- (13) "Renewable Energy Generating Facility" means any identifiable facility, plant, installation, project, equipment, apparatus, or the like, located in the State of Hawaii, placed in service after the effective date of this Schedule, and that generates Renewable Energy from a Renewable Energy Source.

- (14) "Renewable Energy Generator" means any person that owns, controls, operates, manages, or uses a Renewable Energy Generating Facility to produce Renewable Energy from a Renewable Energy Source.
- (15) "Renewable Energy Source" means the following sources of energy:
  - (a) Biomass:
  - (b) Biogas;
  - (c) Geothermal Energy;
  - (d) Landfill Gas;
  - (e) Sewage Treatment Plant Gas;
  - (f) Hydropower;
  - (g) Solar Radiation;
  - (h) Wind.
- (16) "Wood-Burning Generating Facility" means a Renewable Energy Generating Facility that burns wood to generate electricity.
- (17) "Wind Generating Facility" means a Renewable Energy Generating Facility that generates electricity from Wind.

#### Interconnection

At the request of a Renewable Energy Generator that places a Renewable Energy Generating Facility in service, the Company shall interconnect such Renewable Energy Generating Facility to the electric system of the Company, provided that technical requirements set forth in the Company's Rules relating to interconnection of generating facilities with the Company's electric system, as approved by the Public Utilities Commission, are met. Costs incurred by the Company to meet technical requirements of interconnection shall be allocated so that those costs that benefit a Renewable Energy Generating Facility are borne by the Renewable Energy Generator that uses the Renewable Energy Generating Facility to produce Renewable Energy, in conformity with orders of the Public Utilities Commission relating to distributed generation in the State of Hawaii. Each of the Company and the Renewable Energy Generator shall disclose to the other, within 6 weeks of a request by the other, any and all data, relating to the electric system of the Company or the Renewable Energy Generating Facility of the Renewable Energy Generator, necessary to plan and execute such interconnection in conformity with such technical requirements.

A Renewable Energy Generating Facility shall be designed to operate in parallel with the Company's electric system without adversely affecting the operations of its customers and without presenting safety hazards to personnel of the Company or its customers. The Renewable Energy Generator shall furnish, install, operate and maintain facilities such as relays, switches, synchronizing equipment, monitoring equipment and control and protective devices designated by the Company and specified in the standard Schedule FIT Agreement ("Schedule FIT Agreement") as suitable for parallel operation with the electric system of the Company. The Renewable Energy Generating Facility and systems interconnecting the Renewable Energy Generating Facility with the Company's electric system must be in compliance with all applicable safety and performance standards of the National Electric Code (NEC), the Institute of Electrical and Electronics Engineers (IEEE), and the Company's

requirements for distributed generation interconnected with the Company's electric system as provided in the Company's Rules, and subject to any other requirements, including payments, as provided in the Schedule FIT Agreement.

Requests to interconnect a Renewable Energy Generating Facility in parallel with the Company's electric system will be processed in accordance with the procedures in Appendix II.

#### Schedule FIT Agreement:

The Company shall offer a Schedule FIT Agreement, in the form provided in Appendix I, to any Renewable Energy Generator that requests interconnection of a Renewable Energy Generating Facility to the electric system of the Company under this Schedule. Each such Schedule FIT Agreement shall oblige the Company to purchase and pay for all Renewable Energy generated by the Renewable Energy Generating Facility and delivered to the electric system of the Company, and to purchase and pay for all Renewable Energy that would be generated by the Renewable Energy Generating Facility and delivered to the electric system of the Company but for curtailment by the Company of generation or delivery of Renewable Energy by the Renewable Energy Generating Company, and shall oblige the Company to purchase and pay for all such Renewable Energy at the feed-in tariff rate of compensation (in cents per kilowatt-hour) set forth in this Schedule. The Company shall compensate the Renewable Energy Generator for such Renewable Energy in an amount no less than the number of kilowatt-hours of such Renewable Energy multiplied by such rate of compensation.

With respect to Renewable Energy generated by a Hybrid Facility and delivered to the electric system of the Company, each such Schedule FIT Agreement shall oblige the Company to take all such Renewable Energy, and shall oblige the Company to purchase and pay for such Renewable Energy generated by the Hybrid Facility from each Renewable Energy Source at the feed-in tariff rate of compensation (in cents per kilowatt-hour) for such Renewable Energy set forth in this Schedule.

Procedures for requesting and executing a Schedule FIT Agreement are provided in Appendix II to this Schedule.

#### Metering:

The Company, at its expense, shall install a meter to record the flow of Renewable Energy delivered to the electric system of the Company. The Renewable Energy Generator shall, at its expense, provide, install and maintain all conductors, service switches, fuses, meter sockets, meter instrument transformer housing and mountings, switchboard meter test buses, meter panels and similar devices required for service connection and meter installations on the premises of the Renewable Energy Generating Facility in accordance with the Company's Rules.

Any energy delivered to a Renewable Energy Generator by the Company will be metered separately from any Renewable Energy delivered by the Renewable Energy Generator to the Company, either by use of multiple meters or a meter capable of separately recording the net inflow and outflow of electricity.

### Purchase of Renewable Energy Delivered by a Renewable Energy Generator to the Company:

The Company shall pay for each kilowatt-hour ("kWh") of Renewable Energy delivered to the Company by a Renewable Energy Generator as follows.

Renewable Energy Source: Biomass	
Wood-Burning Generating Facility Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 150 kW	17.18
> 150 kW and ≤ 500 kW	13.51
> 500 kW and ≤ 5000 kW	12.18
> 5000 kW	11.45

Renewable Energy Source: Biomass	
Non-Wood-Burning Generating Facility Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 150 kW	28.00
> 150 kW and ≤ 500 kW	24.00
> 500 kW and ≤ 5000 kW	22.00
> 5000 kW	21.00

Renewable Energy Source: Biogas	
Renewable Energy Generating Facility Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 150 kW	17.18
> 150 kW and ≤ 500 kW	13.51
> 500 kW and ≤ 5000 kW	12.18
> 5000 kW and ≤ 20000 kW	11.45

Renewable Energy Source: Geothermal Energy	
Renewable Energy Generating Facility Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10000 kW	23.49
> 10000 kW	15.41

Renewable Energy Source: Landfill Gas or Sewage Treatment Plant Gas	
Renewable Energy Generating Facility Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 500 kW	13.21
> 500 kW and ≤ 5000 kW	9.10

Renewable Energy Source: Hydropower	
Renewable Energy Generating Facility Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 500 kW	18.60
> 500 kW and ≤ 2000 kW	12.70
> 2000 kW and ≤ 5000 kW	11.23
> 5000 kW and ≤ 10000 kW	8.62
> 10000 kW and ≤ 20000 kW	7.93
> 20000 kW and ≤ 50000 kW	5.86
> 50000 kW	4.70

Renewable Energy Source: Solar Radiation	
Photovoltaic Generating Facility Located on Oahu Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	47.9
≥ 10 kW and ≤ 100 kW	43.6
≥ 100 kW and ≤ 500 kW	39.6
≥ 500 kW and ≤ 5000 kW	36.3
≥ 5000 kW	33.0

Renewable Energy Source: Solar Radiation	
Photovoltaic Generating Facility Located on Maui Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	52.7
≥ 10 kW and ≤ 100 kW	47.9
≥ 100 kW and ≤ 500 kW	43.6
≥ 500 kW and ≤ 5000 kW	39.9
≥ 5000 kW	36.3

Renewable Energy Source: Solar Radiation	
Feed-in Tariff Rate (¢/kWh)	
57.5	
52.3	
47.5	
43.6	

Renewable Energy Source: Solar Radiation	
Photovoltaic Generating Facility Located on Lanai Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	57.5
≥ 10 kW and ≤ 100 kW	52.3
≥ 100 kW and ≤ 500 kW	47.5
≥ 500 kW and ≤ 5000 kW	43.6

Renewable Energy Source: Solar Radiation	
Photovoltaic Generating Facility Located on Hawaii Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	53.7
≥ 10 kW and ≤ 100 kW	48.8
≥ 100 kW and ≤ 500 kW	44.4
≥ 500 kW and ≤ 5000 kW	40.7
≥ 5000 kW	37.0

Renewable Energy Source: Solar Radiation	
Concentrating Solar Power Facility Located on Oahu Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 500 kW	39.6
> 500 kW and ≤ 5000 kW	36.3
> 5000 kW and ≤ 10000 kW	33.0
> 10000 kW and ≤ 20000 kW	30.0

Renewable Energy Source: Solar Radiation	
Concentrating Solar Power Facility Located on Maui Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 500 kW	43.6
> 500 kW and ≤ 5000 kW	39.9
> 5000 kW and ≤ 10000 kW	36.3
> 10000 kW and ≤ 20000 kW	34.3

Renewable Energy Source: Solar Radiation	
Concentrating Solar Power Facility Located on Molokai Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 500 kW	47.5
> 500 kW and ≤ 5000 kW	43.6

Renewable Energy Source: Solar Radiation	
Concentrating Solar Power Facility Located on Lanai Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 500 kW	47.5
> 500 kW and ≤ 5000 kW	43.6

Renewable Energy Source: Solar Radiation	
Concentrating Solar Power Facility Located on Hawaii Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 500 kW	44.4
> 500 kW and ≤ 5000 kW	40.7
> 5000 kW and ≤ 10000 kW	37.0
> 10000 kW and ≤ 20000 kW	35.0

Renewable Energy	y Source: Wind
Onshore Wind Generating Facility Located on Oahu Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	
> 10 kW and ≤ 50 kW	
> 50 kW and ≤ 250 kW	
> 250 kW and ≤ 500 kW	
> 500 kW and ≤ 1000 kW	
> 1000 kW and ≤ 2500 kW	
> 2500 kW and ≤ 5000 kW	
> 5000 kW and ≤ 20000 kW	

Renewable Energy Source: Wind	
Onshore Wind Generating Facility Located on Maui Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	
> 10 kW and ≤ 50 kW	
> 50 kW and ≤ 250 kW	
> 250 kW and ≤ 500 kW	
> 500 kW and ≤ 1000 kW	
> 1000 kW and ≤ 2500 kW	
> 2500 kW and ≤ 5000 kW	
> 5000 kW and ≤ 20000 kW	

Renewable Energ	y Source: Wind
Onshore Wind Generating Facility Located on Molokai Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	
> 10 kW and ≤ 50 kW	
> 50 kW and ≤ 250 kW	
> 250 kW and ≤ 500 kW	
> 500 kW and ≤ 1000 kW	
> 1000 kW and ≤ 2500 kW	
> 2500 kW and ≤ 5000 kW	
> 5000 kW and ≤ 20000 kW	

Renewable Energy Source: Wind	
Onshore Wind Generating Facility Located on Lanai Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	
> 10 kW and ≤ 50 kW	
> 50 kW and ≤ 250 kW	
> 250 kW and ≤ 500 kW	
> 500 kW and ≤ 1000 kW	
> 1000 kW and ≤ 2500 kW	
> 2500 kW and ≤ 5000 kW	
> 5000 kW and ≤ 20000 kW	

Renewable Energy	y Source: Wind
Onshore Wind Generating Facility Located on Hawaii Electrical Capacity (kW)	Feed-in Tariff Rate (¢/kWh)
≤ 10 kW	
> 10 kW and ≤ 50 kW	
> 50 kW and ≤ 250 kW	
> 250 kW and ≤ 500 kW	
> 500 kW and ≤ 1000 kW	
> 1000 kW and ≤ 2500 kW	
> 2500 kW and ≤ 5000 kW	
> 5000 kW and ≤ 20000 kW	

Renewable Energ	y Source: Wind
Offshore Wind Generating Facility Years of Agreement Term	Feed-in Tariff Rate (¢/kWh)
Years 1 through 12	
Years 13 through 20	

The Commission shall periodically adjust the Schedule FIT feed-in tariff rates of compensation in accordance with the procedures provided in Appendix III of this Schedule. The Renewable Energy Generator shall receive the feed-in tariff rate of compensation in effect at the time of execution of the Schedule FIT Agreement for the entire term of the Schedule FIT Agreement.

#### Term of Schedule FIT Agreement:

The term of the Schedule FIT Agreement will be as follows, commencing on the initial delivery of Renewable Energy under the Schedule FIT Agreement from the Renewable Energy Generator to the Company:

Renewable Energy Source	Term of Agreement
Biomass	20 years
Biogas	20 years
Geothermal Energy	20 years
Landfill Gas	20 years
Sewage Treatment Plant Gas	20 years
Hydropower	20 years
Solar Radiation	20 years
Wind	20 years

#### **Net Energy Metering**

A Renewable Energy Generator that is eligible to enter into a net energy metering agreement with the Company shall have a choice of either (1) entering into a net energy metering agreement with the Company, or (2) entering into a Schedule FIT Agreement with the Company.

#### Penetration Limits for Intermittent Renewable Energy Sources

The obligations of the Company to interconnect a Renewable Energy Generating Facility to the Company's electric system and to offer an Schedule FIT Agreement to a Renewable Energy Generator to purchase and pay for Renewable Energy at a feed-in tariff rate of compensation under this Schedule shall not apply with respect to Renewable Electricity produced by a Renewable Energy Generating Facility that is (i) a Wind Generating Facility, and that is placed in service after December 31 of the year following the year during which the aggregate Electrical Capacity of Renewable Energy Generating Facilities that are Wind Generating Facilities as to which technical requirements for interconnection have been met equals or exceeds 25 per cent of the peak demand for such electrical system, provided that the Public Utilities Commission may increase, by rule or order, such aggregate Electrical Capacity limit above 25 per cent of such peak demand, or (ii) a Photovoltaic Generating Facility or a Concentrating Solar Generating Facility, and that is placed in service after December 31 of the year following the year during which the aggregate Electrical Capacity of Renewable Energy Generating Facilities that are Photovoltaic Generating Facilities or Concentrating Solar Generating Facilities as to which technical requirements for interconnection have been met equals or exceeds 20 per cent of the peak demand for such electrical system, provided that the Public Utilities Commission may increase, by rule or order, such aggregate Electrical Capacity limit above the above-referenced 25 per cent and 20 per cent peak demands.

#### Queuing Procedures:

Requests for interconnection of Renewable Energy Generating Facilities under this Schedule shall be administered on a first-ready, first-to-interconnect basis, modeled after the queuing procedures adopted by the Midwest Independent Transmission System Operator, Inc. See Midwest Independent Transmission System Operator ("Midwest ISO"), Generator Interconnection Process Tariff (August 25, 2008)

http://www.midwestmarket.org/publish/Document/ 25f0a7 11c1022c619 -

7d600a48324a/Attachment%20X%20GIP.pdf?action=download& property =Attachment; Midwest ISO, <u>Business Practices Manual: Generator Interconnection</u> (Manual No. 15, TP-BPM-004-r2, January 6, 2009)

http://www.midwestmarket.org/publish/Document/45e84c 11cdc615aa1 -7e010a48324a.

#### Renewable Energy Certificates:

Any certificate, credit, allowance, green tag, or other transferable indicia or environmental attribute, verifying the generation of a particular quantity of energy from a Renewable Energy Source, indicating the generation of a specific quantity of Renewable Energy by a Renewable Energy Generating Facility, or indicating a Renewable Energy Generator's ownership of any environmental attribute associated with such generation, is the property of the Renewable Energy Generator and freely assignable by the Renewable Energy Generator.

#### CERTIFICATE OF SERVICE

The foregoing HREA FSOP was served on the date of filing by Hand Delivery or electronically transmitted to each such Party as follows.

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DATED: Honolulu, Hawaii, March 30, 2009v